

VIENNA, AUSTRIA
JULY 7-12, 2002

Computational Mechanics is a far-reaching field, ranging from basic science over applied research to applications in a variety of engineering disciplines. It has played and will be playing a prominent role among the fields in the lead of technological progress. The adjective “computational” in front of the noun “mechanics” emphasizes the strong methodical component of this field, which is inseparably connected with computational mathematics and the digital computer. Nevertheless, the breathtaking success of computational mechanics during the last decades of the 20th century would have been impossible without the existence of a strong scientific foundation -- mechanics.

The impact of computational mechanics on technological progress has indeed been impressive. Equally impressive was the development of the International Association for Computational Mechanics (IACM), founded in the early eighties of the last century. The objective of IACM is to stimulate and promote education, research, and practice in computational mechanics, to foster the interchange of ideas among various fields contributing to computational mechanics, and to provide a forum for dissemination of knowledge about this discipline. Twenty-five national and regional associations from all parts of the globe are affiliated to IACM which in turn is affiliated to the International Union of Theoretical and Applied Mechanics (IUTAM).

The most prominent scientific events under the auspices of IACM are the World Congresses on Computational Mechanics which until now were held at four years' intervals. The venue of the Fifth World Congress on Computational Mechanics (WCCM V) was Vienna, Austria, where WCCM V took place from July 5 to 12, 2002. WCCM V was organised jointly by the Vienna University of Technology (TU Vienna), the Austrian Academy of Sciences (ÖAW), and the Austrian Federal Ministry of Education, Science and Culture (bm:bwk). Chairmen of WCCM V were Prof. Herbert A. Mang, Secretary General of ÖAW, and Prof. Franz G. Rammerstorfer, Vice Rector for Research of TU-Vienna.

The scientific programme of WCCM V consisted of 2 plenary lectures, 16 semi-plenary lectures, 73 minisymposia, 126 regular sessions, and 16 poster sessions. The average number of lectures in a minisymposium and a regular session was 8-9 and 5-6, respectively. The average number of contributions to a poster session was 12.

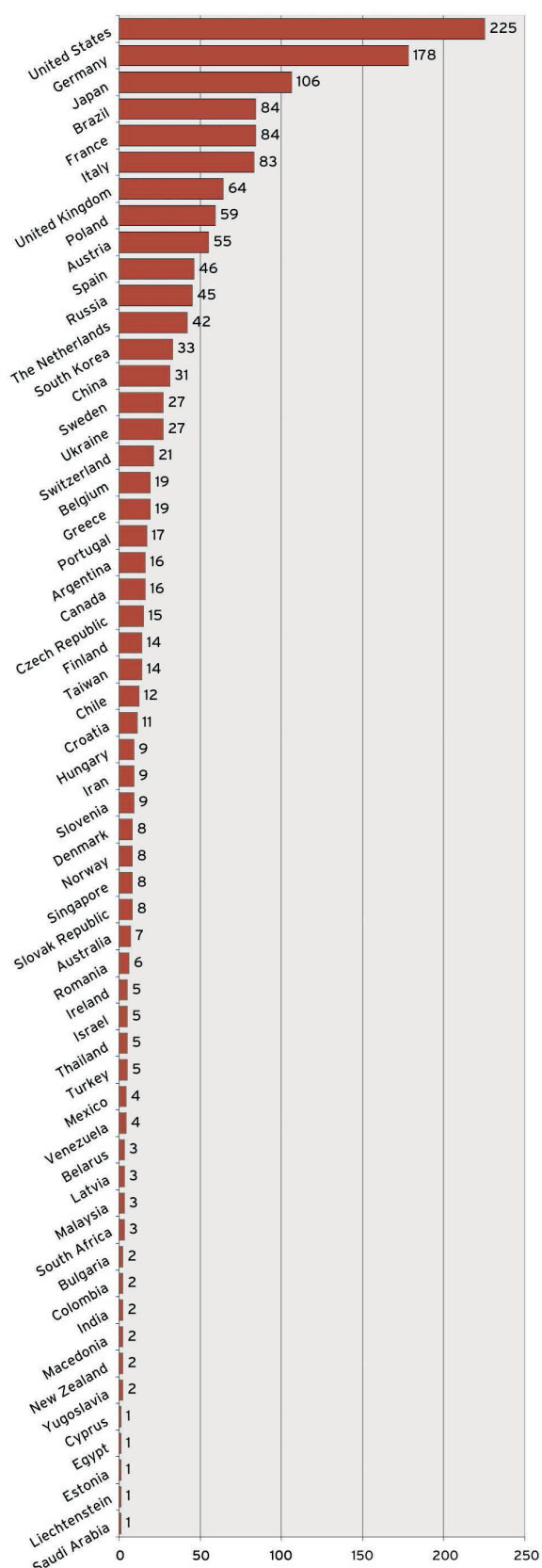
The Local Organising Committee has made a determined effort to include not only engineering scientists but also engineers applying computational mechanics to solve challenging practical problems. For that purpose, an Industrial Committee was established in addition to the Scientific Advisory Board.

One of the two plenary lectures was part of the Opening Ceremony in the Festive Hall of the Hofburg. J.T. Oden, USA, lectured on “A Posteriori Estimation of Modeling and Approximation Error in Computational Science and Engineering: New Tools in Verification and Validation of Computer Simulations”. The other one was part of the Closing Session in the Auditorium Maximum of TU-Vienna. E. Ramm, Germany, talked about “Shells in Advanced Computational Environment”.

Numerous minisymposia were devoted to computational mechanics of materials. Typical examples were: “Computational Materials Mechanics – From Atomistic Simulations to Continuum Mechanics”, “Material and Structure Modeling Incorporating Phase Transformation”, “Computational Biomechanics of Hard and Soft Tissues”, “CFD Modelling in Pyrometallurgy”, “Numerical Methods for Thin Film Flows”, “Modern Issues in Computational Mechanics of Composite Materials and Structures”, “Computational Failure Mechanics at Multiple Scales: Damage and Plasticity”, “Computational Modelling of Particulates and Multi-Fracturing Solids”, “Computational Fracture Mechanics”, “Computational Nanotechnology”, “Computational Multiscale Nanomechanics: Bridging the Length Scales”, “Computational Mechanics of Multi-Physics Processes”. Needless to say, in many of these and of other minisymposia as well as in several regular sessions and poster sessions rheological aspects played a prominent role.

The organisers were overwhelmed by the response for the Call for Papers. Out of 1493 accepted contributions, 887 came from Europe and Africa, 364 from the Americas, and 242 from Asia and Australia. Details of the geographical distribution of the contributions to WCCM V are shown in Figure 1. The approximately 1480 registered participants and 120 accompanying persons were coming from 57 different countries.

The congress website which was established in 1999 proved to be an effective aid for a timely mode of communication of the organisers of



WCCM V with potential participants of the congress. The statistics of the web server revealed that the number of successful requests within the last three years was 398,285. The amount of data transferred during this period of time was 22.4 gigabytes. In the week before the congress, 81,365 successful requests were made. The amount of data transferred during this week was 9.4 gigabytes. The congress website has also been used as the medium for publication of the full-length papers of the accepted publications.

As part of the Social Programme, on July 9, 2002, an exhibition concerning life and work of the famous philosopher, mathematician, natural scientist, and engineer Gottfried Wilhelm Leibniz (1646-1726) was opened in the Festive Hall of the administrative building of the Austrian Academy of Sciences. The official speaker, J. Mittelstraß, Germany, talked about "Leibniz's World: Calculation and Scientific Integration". E. Stein, Germany, one of the organisers of the exhibition which was previously shown at the world exhibition EXPO 2000 at the University of Hannover and as the framework to the conference on Leibniz at Berlin University of Technology, lectured on "Gottfried Wilhelm Leibniz as a Philosopher, Mathematician, Physicist and Engineer". The current site of the exhibition, Vienna, was important to Leibniz. He was a highly esteemed consultant to Emperor Karl VI, elaborating a great variety of treatises. One of them was the plan of founding a society of sciences in Vienna. This plan has not been realised and it was not until 1847 that the "Kaiserliche Akademie der Wissenschaften" (today: "Austrian Academy of Sciences") has been established.

A highlight of the Congress Banquet which took place on July 11, 2002, in the City Hall of Vienna was the awards ceremony. The outgoing President of IACM, T.J.R. Hughes, USA, who conducted the ceremony, cited the outstanding scientific accomplishments of the awardees.

At a meeting of the Executive Council of IACM on July 7, 2002, E. Oñate, Spain, was elected to President of IACM for the coming four years' period.

WCCM V was one of the largest scientific meetings in the long history of mechanics. It was certainly the largest congress in the comparatively short history of computational mechanics in which rheology is playing a prominent role. What is more important than the size of a scien-

Conference Report III

tific event, however, is its quality. In the case of WCCM V, to the great pleasure of the organisers, the level of the scientific presentations as a whole was very high. It reflected the impression about computational mechanics as a dynamic scientific field living up to its claim of a discipline on the forefront of technological progress.

Chairmen of WCCM V:



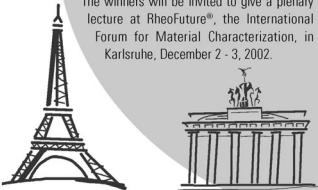

Herbert A. Mang
Institute for Strength of Materials
Vienna University of Technology
Karlsplatz 13, A-1040 Vienna, Austria
Fax: ++43-1-58801-20299
E-mail: Herbert.Mang@tuwien.ac.at

Franz G. Rammerstorfer
Institute for Lightweight Structures
and Aerospace Engineering
Vienna University of Technology
Gußhausstraße 25-29, A-1040 Vienna, Austria
Fax: ++43-1-58801-31799
E-mail: Franz.Rammerstorfer@tuwien.ac.at

Secretary General of WCCM V:

Josef Eberhardsteiner
Institute for Strength of Materials
Vienna University of Technology
Karlsplatz 13, A-1040 Vienna, Austria
Fax: ++43-1-58801-20299
E-mail: Josef.Eberhardsteiner@tuwien.ac.at

www.rheofuture.de

<p>Support careers ... </p> <p>Young Scientists Award 2002</p> <p>Open to all young scientists worldwide either in academic or industrial careers within the sphere of material characterization, Thermo Haake is pleased to present in 2002 the "Young Scientists Award". With this award, young academics are encouraged to present their application oriented research work.</p>	<p>Set trends ... </p> <p>International Forum for Material Characterization</p> <p>Karlsruhe, December 2 - 3, 2002</p> <p>At RheoFuture® leading scientists from all over the world come together to discuss future trends in application and instrumentation technology.</p>
<p>Prize winners</p> <p>For the "Young Scientists Award" prizes will be given both to the winners and their academic groups. The prize for the winners is a weekend trip for 2 persons to Paris or to Berlin.</p> <p>The winners will be invited to give a plenary lecture at RheoFuture®, the International Forum for Material Characterization, in Karlsruhe, December 2 - 3, 2002.</p> 	<p>RheoFuture – Topics</p> <ul style="list-style-type: none"> ■ Combined methods in material characterization Trends and requirements in R&D and development fields ■ On-line The nature of future smart sensors in online rheology and related processing areas ■ Reactive extrusion Monitoring chemical reactions and effects in extrusion processes ■ Characterization of interfaces New and advanced methods for the detection of interfacial properties
<p>boost your career</p> <p> RheoFuture</p> <p>How to apply More information about RheoFuture® and the Young Scientists Award is available under www.rheofuture.de.</p>	<p>set trends</p> <p>ThermoHaake <small>A Thermo Electron business</small></p> <p>Thermo Haake · Dieselstr. 4 · 76227 Karlsruhe · Germany Tel. +49(0)721 40 94-0 · Fax +49(0)721 40 94 300 · Hotline +49(0)18 05 HAAKE info@thermoaake.com · www.thermoaake.com</p>

This is an extract of the complete reprint-pdf, available at the Applied Rheology website
<http://www.appliedrheology.org>